

CLAIMS

1. - Cavity antenna excited by one or several dipoles in a single piece, where the antenna is formed by a cavity in which this single piece is secured comprising one or several dipoles, **characterized** in that the antenna has a metallic plate mounted on an element which excites the cavity (the dipole or the dipoles), said plate being secured and connected electrically to the base of said excitation element in a single piece, to the cavity or to any other element connected to earth.

2. - Cavity antenna excited by one or several dipoles in a single piece according to claim 1, characterized in that the metallic plate is secured at a distance less than $\lambda/2$ with respect to the back wall of the cavity, where λ is the wavelength of the centre frequency of the working band.

3. - Cavity antenna excited by one or several dipoles in a single piece according to claim 2, characterized in that the metallic plate mounted on the element which excites the cavity is located at a distance "d" with respect to the back wall of the cavity, which allows the input impedance of the antenna to be adjusted, based on the modification of the distance "d", without the need to modify any characteristic of the element which excites the cavity or of the cavity, as well as the partial suppression of the reflections which are produced in the radome.

4. - Cavity antenna excited by one or several dipoles in a single piece according to claim 1, characterized in that at the input of the dipoles the connection of standard coaxial cable is carried out directly, without the need to interpose transformers, lengths of cable of different characteristic impedance or carry out any modification in said cables to

adjust the input impedance of the antenna.

5. - Cavity antenna excited by one or several dipoles in a single piece according to claim 2, characterized in that with different geometric forms of the metallic plate, it is possible to control and adjust in a simple manner the level of crosspolar polarization and the decoupling between dipoles.

10 6. - Cavity antenna excited by one or several dipoles in a single piece according to claim 2, characterized in that the metallic plate is secured on the element which excites the cavity by means of rods.

15 7. - Cavity antenna excited by one or several dipoles in a single piece according to claim 6, characterized in that to house the bottom end of the rods on the base of the element which excites the cavity some expansions or bosses emerge.

20 8. - Cavity antenna excited by one or several dipoles in a single piece according to any one of the claims 1 to 7 characterized in that on the metallic plate of one or more antennas like those of the invention in an array of said antennas a small bar or metal strip can be mounted whereby a better reception is achieved of the signals which are received from the side, the misalignment effect of the polarization due to the lateral application of the signals at the antenna being offset with the aforementioned bars and strips.

30 9. - Cavity antenna excited by one or several dipoles in a single piece according to claim 8, characterized in that by adjusting the distances at which the metallic plates are placed from the antennas in an array of said antennas, it is possible to suppress partially the reflections which are

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produced on the protective enclosure of the antenna or radome.

- 5 10. - Cavity antenna excited by one or several dipoles in a single piece according to claim 2, characterized in that the cavity is manufactured in steel and plated electrolytically while the protective layer of the antenna or radome is fabricated in glass fibre with polyester.
- 10 11. - Cavity antenna excited by one or several dipoles in a single piece according to claim 10, characterized in that the electrolytic plating is in copper and white brass.
- 15 12. - Cavity antenna excited by one or several dipoles in a single piece according to claim 8 or 9, characterized in that in an array of said antennas all the cavities and the elements which excite them are identical.
- 20 13. - Cavity antenna excited by one or several dipoles in a single piece according to any one of the previous claims characterized in that the whole structure of an array, consisting of an array of antennas like that of the invention, is manufactured in steel and plated electrolytically while the radome is fabricated in glass
25 fibre with polyester.
- 30 14. - Cavity antenna excited by one or several dipoles in a single piece according to claim 13, characterized in that the electrolytic plating is in copper and white brass.
- 35 15. - Cavity antenna excited by one or several dipoles in a single piece according to any one of the previous claims characterized in that by adjusting the profiles and the heights of the side walls of the cavity as well as the dimensions of the cavity different radiation patterns are

formed, with different characteristics such as the main beam width or level of main lobe to secondary for example.

16. - Cavity antenna excited by one or several dipoles in a single piece according to any one of the previous claims characterized in that by modifying the size, the profiles of the side walls of the cavity and the height thereof as well as the size of the cavity, it is possible to improve even more the decoupling between dipoles and level of crosspolar polarization.